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# Public Health Reports

**VOLUME 59      DECEMBER 1, 1944      NUMBER 48**

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(II)

# Public Health Reports

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## FLUORIDE DOMESTIC WATERS AND SYSTEMIC EFFECTS<sup>1</sup>

### I. Relation to Bone-Fracture Experience, Height, and Weight of High School Boys and Young Selectees of the Armed Forces of the United States

By F. J. McCURE, *Senior Biochemist, United States Public Health Service*

The involvement of skeletal tissue as an effect of toxic quantities of fluorine has been noted in a number of clinical and epidemiological studies (1, 2). The results of two experiments, one related to dairy cattle (3), the other to swine (4), have attributed reduced breaking strength of long bones to excessive fluorosis. On the contrary, an increase in breaking strength of long bones of dairy cattle (5) has been related to an enlargement of shaft walls which frequently accompanies extreme cases of fluorine toxicosis. Sometime ago it was suggested by Christiani (6) that fluorine might cause bones to become fragile, a suggestion which gains support from evidence that toxic skeletal effects of fluorine resemble osteosclerosis. There is the implication, therefore, that even in young individuals exposure to fluorine may be indirectly responsible for an unusual number of bone fractures. Involvement of skeletal tissues from excessive fluorine is shown in certain other results of clinical studies (1, 2, 7, 8, 9, 10, 11), as well as in results of certain animal experiments (3, 4, 12, 13, 14, 15, 16).

In order to obtain information regarding possible skeletal effects of dietary fluorine, an attempt has been made to discover a relation between fluorine ingestion via domestic drinking waters and the height, body weight, and bone-fracture experience of selected groups of 1,458 high school boys and 2,529 young adult men taking the physical examination at United States armed forces induction centers. The significance of these studies relates to two facts: (a) many drinking waters in the United States and other parts of the world contain fluorides (17); and (b) it has been suggested that optimum quantities of fluoride might be added to domestic water supplies (18, 19) or directly to children's diets (20) for the partial control of dental caries.

<sup>1</sup> From the Dental Research Section, Division of Physiology, National Institute of Health.

Any information which suggests a health hazard surrounding either natural or artificial sources of fluorine in human diets is of obvious interest.

#### PLAN OF STUDY

*Procedure for obtaining physical data.*—Bone-fracture data, presented in table 3, were obtained by personal interviews with selectees who reported for physical examination at induction centers located in Lubbock, Tex.; Oklahoma City, Okla.; Indianapolis, Ind.; Fort Myer, Va. (Washington, D. C., area); and Manchester, N. H. Each man was questioned as to birthplace, continuity of residence, age (as of last birthday), and bone-fracture experience. In most instances attention was called to specific body members (arm, rib, nose, collar-bone, etc.). In many cases the selectee was asked to describe the nature or seriousness of his injury, in order to determine, if possible, that a fracture had actually been sustained. In general, it is believed that major breaks were accurately reported, and the data as obtained are satisfactory for comparative purposes. Height and weight (without clothing) were measured by Service personnel as a regular routine in the physical examination. Height was measured by a measuring rod attached to the weight scale.

The data shown in table 4 were copied from Army records on file at the Lubbock, Tex., induction center. The physical examination of these 935 men is assumed to be reasonably uniform. Practically all the men whose records were copied passed through the Lubbock induction center within the last 6 months of 1942 and the first 6 months of 1943.

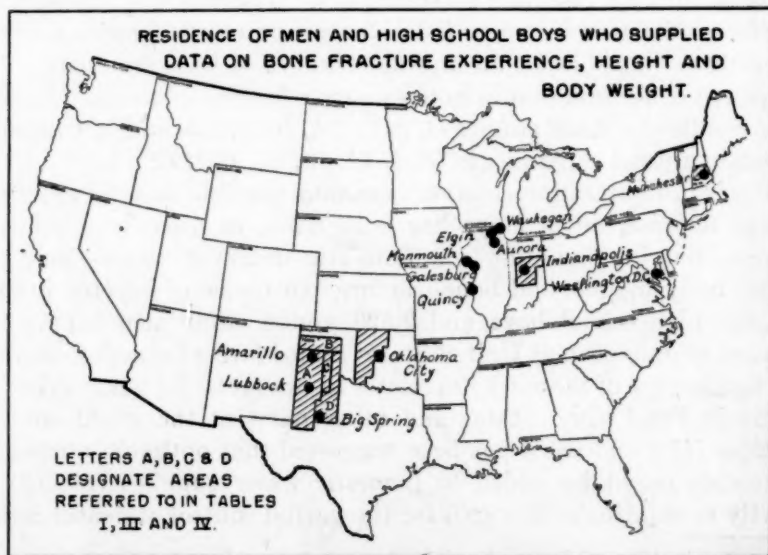


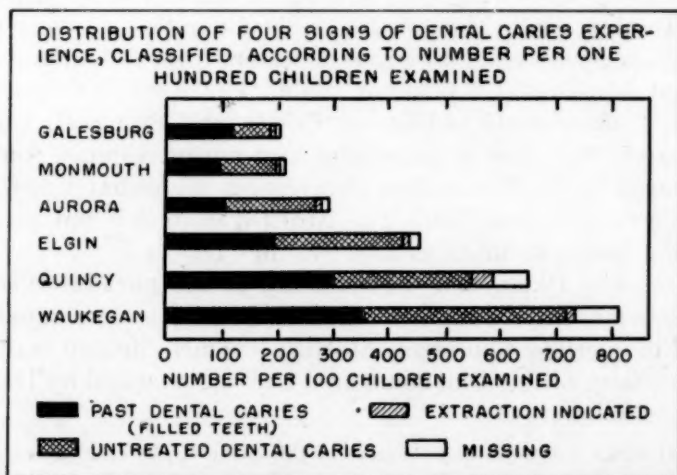
FIGURE 1.

The procedure followed for the high school boys listed in table 2 was similar to that followed at the induction centers. Boys aged 15 to 17 years (age as of last birthday) were interviewed at high schools located in Galesburg, Monmouth, Quincy, Aurora, Elgin, and Waukegan, Ill., and Washington, D. C. Only boys who gave their residences as practically continuous in their home towns were accepted for final data. Each boy was asked to state his history of bone fractures. Height was measured by a rod attached to the weight scale. Height and weight (without clothing) were taken by the writer or, under the writer's supervision, by a boy selected from each group. These groups consisted of 15 to 20 boys each. It should be noted that the weight scale with height rod was the one currently in use in the schools. The writer's height and weight were checked on the scale and height rod of each school. No appreciable variation was apparent from one school to another.

In addition to obtaining the above physical data at the induction centers and high schools, a large number of urine specimens were obtained for fluorine analysis. These analytical fluorine data are reported in a subsequent article, the second in this series.

*Fluoride exposures in various areas studied.*—The selection of areas of fluoride and nonfluoride exposure was made on the basis of (a) previous studies of endemic dental fluorosis, particularly by H. T. Dean and his associates (17, 21), and others (22, 23), (b) water fluoride chemistry (23, 24, 25, 26, 27, 28) (see also table 1), and (c) incidence of dental caries (29, 30, 31, 32, 33) (see also fig. 2).

Dean, Dixon, and Cohen (21) studied the incidence and severity



DATA FOR GALESBURG, MONMOUTH AND QUINCY, TAKEN FROM REPORT BY DEAN, JAY, ARNOLD, MC CLURE AND ELVOLVE - REF. NO. 30. DATA FOR ELGIN, QUINCY AND WAUKEGAN, TAKEN FROM REPORT BY DEAN, JAY, ARNOLD AND ELVOLVE, REF. NO. 29

FIGURE 2.

of mottled enamel in the Panhandle-West Texas area in 1934. They concluded that this area "constitutes the largest mottled enamel area in the United States." A lifetime exposure to fluoride-bearing drinking water experienced by these children at approximately age 12 (21) is now unquestioned as the cause of their mottled enamel (17). Analysis of drinking waters from this locality shows the presence of unusual quantities of fluorine. (See table 1 for analytical data covering waters of this area.) The evidence of continuous fluoride exposure (mottled enamel) in children, with an average age of about 12 years, residing particularly in Texas area "A" in 1934, is good assurance that continuous residents aged 18 to 25 years in 1943 (the year of this survey) were similarly exposed to fluoride waters throughout life. Areas "A," "B," "C," and "D" (see tables 1, 3, and 4) were selected for varying levels of fluoride exposure within the West Texas-Panhandle area.

Men reporting to the Lubbock, Tex., induction center (and also to the other induction centers where this survey was made) usually arrived by county groups, and, with the exception of men from Lubbock and Amarillo, Tex., Indianapolis, Ind., and Washington, D. C., the county is the designated residence area. Many of the men in the Texas, Indiana, and New Hampshire groups came from ranches, farms, and small towns. The individual water histories of these men were not ascertained.

Residents of Texas areas "A" and "B" seem more or less certain to have been exposed to waters of high fluoride content. In general the waters of these areas come from a common aquifer, i. e., a porous sandy deposit known as the Ogallala formation (25). Area "C" (Gray, Donley, Hall, Motley, and Kent Counties) lies just east of the Ogallala formation. Fluorine in waters from this area averages somewhat less than 1.2 p. p. m. (table 1). Area "D" consists of Wheeler, Collingsworth, Childress, Cottle, and Stonewall Counties, east of area "C," and also includes a group of counties south and east of area "A." Water fluoride averages somewhat less than 1.0 p. p. m. F in this area (table 4). Mottled enamel is not present in endemic proportions in either area "C" or "D."

West central Oklahoma, the residence of 365 men interviewed at the Oklahoma City induction center (table 3), is designated as an area of borderline fluorosis. Mottled enamel, dental caries, and water relations of this Oklahoma area were summarized by Dean (30) in 1939 as follows:

An analysis of the dental caries rates of this State (Oklahoma) as reported in Public Health Bulletin No. 226, together with observations made by one of us (H. T. D.) in connection with mottled enamel studies, indicate that the dental caries rates are appreciably lower in that part of the State in general west of the Permian outcropping. The part of Oklahoma seemingly characterized by low





Indianapolis, Ind., and the counties included in the area designated as "rural central Indiana" (table 3) are not regarded as mottled enamel areas. The Indianapolis water supply contains currently 0.2 p. p. m. fluoride (F). Fluorine in other waters from this area is reported in table 1. The current water supply of Danville (Hendricks County), Ind., shows 1.8 p. p. m. fluorine, an unusually high figure for this area. There were, however, only 18 men from Hendricks County among the group of 232 men from rural Indiana. The fluoride exposure of these 232 Indiana men according to available evidence would appear to average about 0.5 p. p. m. water-borne fluorine.



The District of Columbia obtains its water supplies from the Potomac River. The water contains currently 0.0 p. p. m. fluorine. Endemic dental fluorosis is not present among continuous residents of the District or its suburbs.

Waters from New Hampshire (table 1) are uniformly free of fluoride. Mottled enamel is not present. New Hampshire, in common with most of the New England States, has a particularly high rate of dental caries (33).

Dean and his associates studied the dental health of 12- to 14-year-old children residing continuously in Galesburg, Monmouth, and Quincy, Ill., in relation to fluoride in local drinking water (30). This survey, which was made in 1938, should be consulted for a complete history of the communal water supplies of these three cities. Children aged 12 to 14 years residing continuously in Aurora, Elgin, and Waukegan, Ill., were subjects of a dental study by Dean and his associates in 1940 (29). This later report should also be consulted for a history of water supplies of these towns. Table 1 shows fluorine analysis of drinking waters used in these six Illinois towns.

Figure 2, copied from the reports by Dean, Jay, Arnold, McClure, and Elvove (30), and Dean, Jay, Arnold, and Elvove (29), shows the relative dental caries experience among 12- to 14-year-old children residing in these six Illinois towns.

#### DISCUSSION

Athletic injuries, including incidence and types of fractures associated with various sports have been tabulated (34). There are also numerous statistics on fractures due to occupational, domestic, and traffic accidents (35); Grauhan and Schulz (36) classified 872 hospital-treated fracture cases according to age. They found the greatest frequency for ages 10 to 15 years. There was a surprising drop in incidence between ages 15 and 20, a sharp rise in the group aged 25 to 30, followed by a marked and continuous decline for older age groups. These workers observed that a majority of fractures were not due to major accidents or catastrophes, but to minor everyday happenings such as slipping on floors, falls from bicycles, etc., and playing games. These causes surrounded particularly the young age groups. Industrial hazards naturally played an important role among older groups. Many more fractures occurred in boys than in girls. In the 10- to 15-year age group, for example, there were 4 fractures in boys to 1 in girls (36).

In analyzing the data presented in tables 2, 3, and 4, and in figures 3 and 4, it is assumed that the usual activities (play, sports, etc.) which may influence the bone-fracture experience, will be similar for the various localities studied. The individual's economic status and

industrial pursuits also may be presumed to affect the bone-fracture hazard. These variables, it will be noted, were not measured. In the case of New Hampshire men vs. the Oklahoma men and the Texas men, there seems some justification for regarding the outdoor activities as variable. Likewise, the communal life of the Wash-

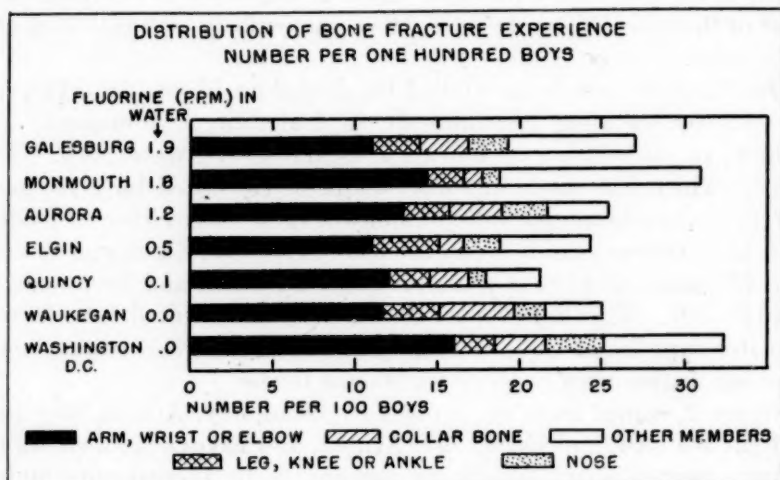


FIGURE 3.

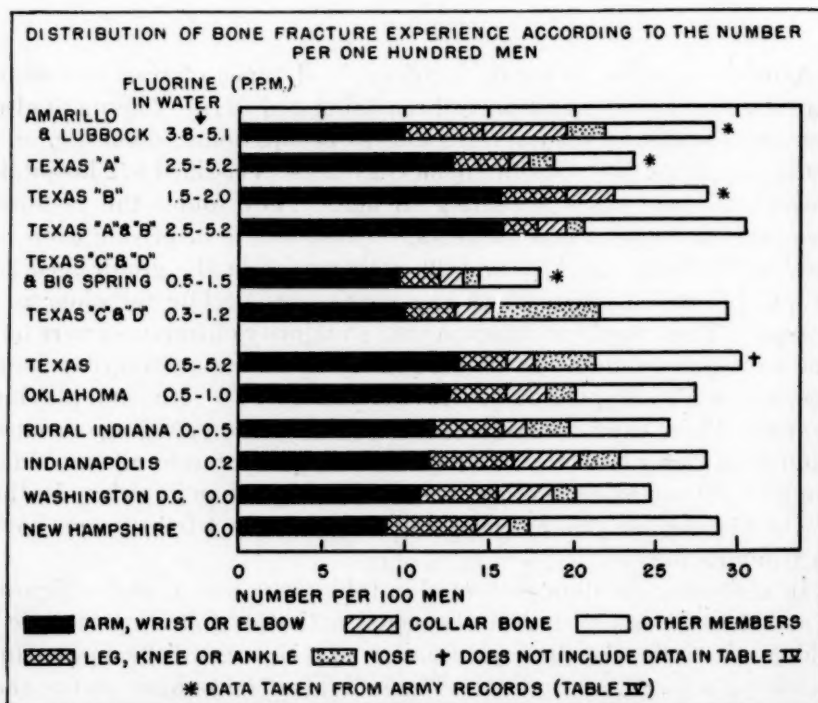


FIGURE 4.

ington, D. C., boys seems to be different from that of Illinois boys. The boys living in Washington, D. C., seem to fall into a somewhat different category than the Illinois boys, because of their residence in a large metropolitan center. In general, these boys are from families above average economic status. They were located at the Woodrow Wilson High School in one of the better residential areas of Washington. With the exception of Aurora, Ill., the Illinois cities studied had but one high school, which made it possible to interview representative groups of boys. In Aurora the boys were enrolled at East Aurora High School, the larger of two city high schools. A good cross section of the community is represented among the pupils of this school. Population statistics for these Illinois cities have been discussed in reports of previous dental studies (29, 30).

Inspection of bone-fracture experience among the different groups of high school boys (table 2 and fig. 3) does not reveal differences of great significance. No relation can be found between fluoride exposure and incidence of fractures in these age groups. In general the data would appear to be remarkably consistent. As noted above, the

TABLE 2.—*Bone-fracture experience, height, and weight of 1,458 high school boys aged 15 to 17 years, residing in 6 Illinois towns and Washington, D. C., where community water supplies varied in fluorine content from 0.0 to 1.9 p. p. m.*

Location	Galesburg	Monmouth	Galesburg and Monmouth	Aurora	Elgin	Quincy	Waukegan	Quincy and Waukegan	Washington D. C. <sup>1</sup>
Fluorine in water (p. p. m.)	1.9	1.7	1.7-1.9	1.2	0.5	0.1	0.0	0.0-0.1	0.0
Number of boys	207	90	297	248	218	206	203	409	286
Boys aged 15 years (percent)	37.05	41.11	38.33	45.56	30.27	22.33	46.79	34.47	30.77
Boys aged 16 years (percent)	36.04	35.55	35.89	33.46	34.86	39.32	38.92	39.12	39.51
Boys aged 17 years (percent)	26.91	23.34	25.78	20.98	34.86	38.35	14.29	26.41	29.72
Continuity of residence (years)	15.8	15.1	15.5	15.6	15.7	15.5	15.2	15.4	15.1
Average age (years)	16.1	15.8	16.0	15.9	16.1	16.2	15.7	15.9	16.0
Average height (inches)	67.6	66.5	67.2	66.7	68.0	67.2	67.4	67.3	68.4
Average weight (pounds)	138.2	129.9	135.6	136.5	136.1	134.2	135.8	135.0	140.7

BONE-FRACTURE EXPERIENCE (NUMBER PER 100 BOYS)

Arm, wrist, or elbow	11.1	14.4	12.1	12.9	11.0	12.1	11.8	12.0	16.1
Leg, knee, or ankle	2.9	2.2	2.7	2.8	4.1	2.4	3.4	2.9	2.4
All fractures of arm and leg	14.0	16.6	14.8	15.7	15.1	14.5	15.2	14.9	18.5
Collar bone	2.9	1.1	2.4	3.2	1.4	2.4	4.4	3.4	3.1
Nose	2.4	1.1	2.0	2.8	2.3	1.0	2.0	1.5	3.5
Other members fractured	7.7	12.2	9.1	3.6	5.5	3.4	3.4	3.4	7.3
Total of all fractures	27.0	31.0	28.3	25.3	24.3	21.3	25.0	23.2	32.4

PERCENT OF BOYS HAVING BONE-FRACTURE EXPERIENCE

Boys experiencing 1 or more fractures	23.7	22.2	23.2	19.8	21.6	18.0	19.7	18.8	23.1
Boys experiencing more than 1 fracture	2.9	4.4	3.4	5.2	2.3	3.4	4.4	3.9	4.5

<sup>1</sup> There were 67 boys in this group whose continuous residence was in Washington, D. C., and in one of the following cities: New York, Chicago, Baltimore, Brooklyn, Boston, Detroit, Philadelphia, and Atlantic City. There is reasonable assurance that the water supplies of these cities are practically fluoride-free.

data supplied by boys from Washington, D. C., may have been influenced by their economic status and facilities for athletic activities. Arm and leg fractures show a particularly uniform incidence, equalling 11 to 12 cases per 100 boys. From 50 to 60 percent of all the fractures are accounted for by arm and leg fractures. These fractures therefore occurred most frequently, and their incidence in particular indicates the ability of the important long bones to resist an outside force or unusual strain.

Other fractures, i. e., collar bone, nose, and miscellaneous fractures (ribs, fingers, toes, hands, and feet), show considerable variation, possibly because these usually constitute minor injuries and leave more varying memories. Fractures to skull, spine, and neck are included in the group of "other members fractured" (tables 2, 3, and 4). There were very few such fractures reported.

The fracture experience of different groups of Army inductees (table 2) did not bring out differences significant in themselves or related to fluoride exposure. There appears to be a slight but consistent

TABLE 3.—*Bone-fracture experience, height, and weight of 1,594 men reporting for physical examination at armed forces induction centers located in selected fluoride and nonfluoride areas of the United States*

Area classification	Fluoride			Border-line fluoride	Nonfluoride			
	2.0-5.0	0.3-1.0	0.3-5.0	0.5-1.0	0.0-0.5	0.2	0.0	0.0
Location	Texas area "A" and "B"	Texas area "C" and "D"	All Texas areas	West-central Oklahoma	Rural-central Indiana	Indianapolis Indiana	Washington, D. C.	Central New Hampshire
Number of men interviewed.....	190	138	<sup>1</sup> 328	365	232	210	213	246
Continuity of residence (years).....	17.0	15.8	16.5	18.1	19.6	19.3	21.3	22.0
Average number of years in school.....	10.7	11.5	11.0	10.6	11.2	11.7	11.1	10.7
Average age (years).....	19.9	18.7	19.0	18.8	20.1	19.4	21.8	22.5
Average height (inches).....	69.6	69.5	69.6	69.4	68.1	68.3	69.3	67.3
Average weight (pounds).....	149.7	147.9	149.0	142.4	146.8	146.2	151.2	149.6

BONE-FRACTURE EXPERIENCE (NUMBER PER 100 MEN)

Arm, wrist, or elbow.....	15.8	9.8	13.3	12.6	11.6	11.4	10.8	8.9
Leg, knee, or ankle.....	2.1	3.6	2.7	3.3	4.3	5.2	4.7	5.3
All fractures of arm and leg.....	17.9	12.9	16.0	15.9	15.9	16.6	15.5	14.2
Collar bone.....	1.6	2.2	1.8	2.5	1.3	3.8	3.3	2.0
Nose.....	1.1	6.5	3.4	1.9	2.6	2.4	1.4	1.2
Other members fractured.....	9.9	7.9	9.1	7.2	6.0	5.2	4.7	11.4
Total of all fractures.....	30.5	29.5	30.3	27.5	25.8	28.0	24.9	28.9

PERCENT OF MEN HAVING BONE-FRACTURE EXPERIENCE

Men experiencing 1 or more fractures.....	26.3	24.5	25.5	23.3	24.1	22.5	22.1	25.6
Men experiencing more than 1 fracture.....	3.2	4.3	3.6	3.8	1.7	4.8	2.8	3.3

<sup>1</sup> 187 of these men from Texas areas were students at the Texas Technological College, Lubbock, Tex.

decrease in arm, wrist, and elbow fractures, beginning with Texas men (0.5-5.2 p. p. m. F) and proceeding through fracture incidence in Oklahoma men (0.5-1.0 p. p. m. F), rural Indiana (0.0-0.5 p. p. m. F), and Indianapolis, Ind., men (0.2 p. p. m. F), to Washington, D. C., and New Hampshire men (0.0 p. p. m. F) (table 3 and fig. 4). It appears wise at this time to regard the differences between New Hampshire and Washington, D. C., men and Oklahoma and Texas men, for example, as either fortuitous or possibly due to more hazardous activities connected with rural outdoor life in Texas and Oklahoma areas. Urban populations (Amarillo and Lubbock), however, showed no more fractures than Washington, D. C. Men from rural Indiana and Indianapolis possibly represent more nearly average or normal exposure to fracture-inducing activities.

The data copied from Army physical examination records on file at the Lubbock, Tex., induction center are, in general, similar to bone

TABLE 4.—*Bone-fracture experience, height, and weight of 935 men reporting for physical examination at armed forces induction center, Lubbock, Tex. Data copied from Army records*

Mottled enamel index <sup>1</sup>	Very marked to medium			Slight	Borderline to negative					
Fluorine in drinking water, estimated (p. p. m.)	2.0-5.1			1.2-2.0	0.3-1.0					
Location <sup>2</sup>	Amarillo and Lubbock	Area "A"	Area "A" Amarillo and Lubbock	Area "B"	Area "C"	Area "D"	Big Spring	Areas "C" and "D" and Big Spring	All Texas areas	
Number of men.....	178	337	515	71	98	208	43	349	935	
Average years in school <sup>3</sup> .....	10.7	10.4	10.5	10.8	10.1	10.0	9.7	10.1	10.3	
Average age (years).....	20.4	20.7	20.6	21.5	21.3	21.2	21.4	21.3	20.9	
Average height (inches).....	69.1	69.3	69.2	69.0	69.3	69.4	68.9	69.3	69.2	
Average weight (pounds).....	149.0	146.2	147.1	149.6	148.4	149.8	147.4	149.1	148.1	

#### BONE-FRACTURE EXPERIENCE (NUMBER PER 100 MEN)

Arm, wrist, or elbow.....	10.1	12.8	11.8	15.5	11.2	8.7	11.6	9.7	11.3
Leg, knee, or ankle.....	4.5	3.3	3.7	4.2	3.1	2.4	0.0	2.3	3.2
All fractures of arm and leg..	14.6	16.1	15.5	19.7	14.3	11.1	11.6	12.0	14.5
Collar bone.....	5.1	1.2	2.5	2.8	2.0	1.4	0.0	1.4	2.1
Nose.....	2.2	1.5	1.8	0.0	2.0	0.0	2.2	0.9	1.3
Other members fractured.....	6.7	4.8	5.5	5.6	3.1	3.8	4.3	3.7	4.8
Total of all fractures.....	28.6	23.6	23.3	28.1	21.4	16.3	17.1	18.0	22.7

#### PERCENT OF MEN HAVING BONE-FRACTURE EXPERIENCE

Men experiencing 1 or more fractures.....	21.3	19.9	20.4	23.9	20.4	13.9	17.1	16.3	19.1
Men experiencing more than 1 fracture.....	4.5	2.7	3.3	2.6	1.0	2.9	0.0	2.0	2.8

<sup>1</sup> See Mottled enamel in Texas, by H. Trendley Dean, R. M. Dixon, and Chester Cohen. Pub. Health Rep., 50: 424-442 (March 1935).

<sup>2</sup> Only men were selected whose place of birth and current residence were the same.

<sup>3</sup> Records were copied for men who had completed a minimum of 6 years of school.



fracture data obtained by the writer (table 3). It was particularly fortunate that the medical personnel at the Lubbock induction center were especially careful to determine the bone-fracture experience of men examined at that center. Inspection of the bone-fracture data (tables 3 and 4 and fig. 3) does not reveal differences among these various groups of men which may be related to fluorine exposure via drinking water.

*Height and weight relations.*—With the exception of Elgin boys, the average height of Illinois high school boys is 67.0 inches, varying from 66.7 inches for Aurora boys to 67.4 inches for Waukegan boys. Washington, D. C., and Elgin, Ill., boys average 68.4 and 68.0 inches respectively. Washington, D. C., boys average about 5 pounds heavier than the average weight of Illinois boys. In general these height and weight figures show no variations which are significant nor do any variations coincide with fluorine exposures. These figures compared with other height-weight data and standard for boys in these age groups are shown in table 5.

TABLE 5.—*Comparison of average height and weight of high school boys (table 2) with other height and weight data for boys aged 16 years*

BOYS AGED 16 YEARS			
	Height (inches)	Weight (pounds)	Reference
Baldwin-Wood tables.....	62-72	107-155	38
College students.....	67.48	133.70	37
Engelbach.....	61.8-66.2	96-122	39
Boys in military training camps.....	66.92	128.09	40
Medico-actuarial tables.....	(67)	(132)	41
Do.....	(68)	(136)	41
Do.....	(69)	(140)	41
BOYS APPROXIMATE AVERAGE AGE 16 YEARS			
Galesburg and Monmouth boys.....	67.2	135.6	Table 2
Aurora boys.....	66.7	136.5	Table 2
Elgin boys.....	68.0	136.1	Table 2
Quincy boys.....	67.2	134.2	Table 2
Waukegan boys.....	67.4	135.8	Table 2
Washington, D. C., boys.....	68.4	140.7	Table 2

The height of Texas men averages uniformly higher than men from other areas. Men from New Hampshire average slightly more than 2 inches shorter than men from Texas and Oklahoma (tables 3 and 4). The average-weight figures for all the men are quite uniform, equalling roughly 146 to 151 pounds, excluding Oklahoma men, who average 142.4 pounds.

In general the height-weight data presented in tables 3 and 4 give no indication of a relation to fluoride exposure. A comparison of these data with other similar data and height-weight standards, is presented in table 6.



TABLE 6.—Comparison of height and weight of young adult male populations

Age	19		20		21		22		Reference
	Height, inches	Weight, pounds	Height, inches	Weight, pounds	Height, inches	Weight, pounds	Height, inches	Weight, pounds	
College students.....	68.82	142.5	68.79	144.1	68.77	144.9	-----	-----	(37)
Army recruits 1906-15.....	66.97	136.3	67.02	138.1	67.33	141.2	67.34	-----	37, 42
Engelbach.....	67.5	131.3	68.0	135.0	-----	-----	-----	-----	39
Men in citizen's training camps.....	68.07	137.7	68.10	139.9	68.16	140.9	-----	-----	40
Medico-actuarial tables.....	(67)	(138)	(67)	(140)	(67)	(142)	(67)	(143)	41
Do.....	(68)	(142)	(68)	(144)	(68)	(145)	(68)	(146)	41
Do.....	(69)	(146)	(69)	(148)	(69)	(149)	(69)	(150)	41
Texas areas "A" and "B".....	-----	-----	69.6	149.7	-----	-----	-----	-----	Table 3
Texas areas "C" and "D".....	69.5	147.9	-----	-----	-----	-----	-----	-----	Table 3
Texas area "A", Amarillo, Lubbock.....	-----	-----	-----	-----	69.2	147.1	-----	-----	Table 4
Texas areas "C" and "D" Big Spring.....	-----	-----	-----	-----	69.3	149.1	-----	-----	Table 4
All Texas areas.....	69.6	149.0	-----	-----	69.2	148.1	-----	-----	Table 3
Do.....	-----	-----	-----	-----	-----	-----	-----	-----	Table 4
West-central Oklahoma.....	69.4	142.4	-----	-----	-----	-----	-----	-----	Table 4
Rural-central Indiana.....	-----	-----	68.1	146.8	-----	-----	-----	-----	Table 3
Indianapolis, Ind.....	68.3	146.2	-----	-----	-----	-----	-----	-----	Table 3
Washington, D. C.....	-----	-----	-----	-----	-----	-----	69.3	151.2	Table 3
Central New Hampshire.....	-----	-----	-----	-----	-----	-----	67.3	149.6	Table 3
556 freshmen—Texas A. & M. College <sup>1</sup> .....	69.2	145.3	-----	-----	-----	-----	-----	-----	(F. J. Mc.)
770 freshmen—Maryland University <sup>1</sup> .....	68.8	146.2	-----	-----	-----	-----	-----	-----	(F. J. Mc.)

<sup>1</sup> Boys aged 17, 18, and 19 years. Data copied from records of physical examination given at time of entry (1940-43).

## SUMMARY

A study was made of the relation of fluoride (F) in drinking water to bone-fracture experience, height, and weight of high school boys and young adult males. Among high school boys the number of fractures per 100 boys varied from 21.3 to 32.4. The numbers of fractures to arms and legs per 100 boys varied from 14.0 to 18.5. These later fractures account for about 60 percent of all fractures. There was no relation of fracture experience to fluoride exposure. The average height and body weight of all the boys compared favorably with other height-weight data and accepted standards. The height-weight data were not related to fluoride exposures.

The bone-fracture experience of young adult males who were taking the physical examination at armed forces induction centers varied from about 25.0 to 30.0 fractures per 100 men averaging about 18 to 25 years of age. An experience of more than 1 fracture varied from 1.7 to 4.8 men per 100 men. While these data on bone-fracture experience for both men and boys of these ages do not permit final conclusions, they do suggest strongly that no serious impairment in skeletal performance, as might be manifest in number of broken bones, seems related to exposure to fluoride domestic waters of the concentrations studied in this survey.

Texas men exposed to highest water-fluorine concentrations and Oklahoma men averaged 69.6 and 69.4 inches in height (weight 149.0 and 142.4 pounds), respectively. Men from rural Indiana and Indianapolis averaged 68.1 and 68.3 inches in height, 146.8 and 146.2 pounds in weight, respectively. Washington, D. C., men averaged 69.3 inches and weighed 151.2 pounds on the average. New Hampshire men were 67.3 inches tall and weighed 149.6 pounds on the average. These height-weight figures showed no relation to fluoride exposure.

#### ACKNOWLEDGMENTS

The writer is especially grateful for the assistance given by the numerous educational authorities in each of the six Illinois cities and in the District of Columbia. Their interest and cooperation were extremely helpful. Acknowledgment is made also to the medical officers and other personnel of armed forces induction centers, where facilities were made available for this study.

#### PERMISSION FOR PUBLICATION

Permission for publication of the data obtained at armed forces induction centers has been granted by the Office of the Surgeon General, War Department, Washington, D. C.

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## PREVALENCE OF COMMUNICABLE DISEASES IN THE UNITED STATES

October 8–November 4, 1944

The accompanying table summarizes the prevalence of nine important communicable diseases, based on weekly telegraphic reports from State health departments. The reports from each State for each week are published in the PUBLIC HEALTH REPORTS under the section "Prevalence of disease." The table gives the number of cases of these diseases for the 4 weeks ended November 4, 1944, the number reported for the corresponding period in 1943, and the median number for the years 1939–43.

### DISEASES ABOVE MEDIAN PREVALENCE

*Poliomyelitis*.—The number of cases of poliomyelitis dropped from 4,451 during the preceding 4-week period to 2,464 for the 4 weeks ended November 4. By weeks the cases dropped from 1,683 in the peak week of the present epidemic (week ended August 2) to 521 cases during the week ended November 4. All sections of the country showed a decline in the number of cases in recent weeks. Although the epidemic appears to be about over there is still a relatively large number of cases. Compared with preceding years the number of cases was 1.6 times the incidence for the corresponding period in 1943 and 1.9 times the 1939–43 median. In the West South Central and Mountain regions the incidence was below the seasonal expectancy, but in other sections the excesses over the median ranged from 1.1 times the median in the Pacific region to more than 7 times the median in the Middle Atlantic section. In the 44 weeks since the beginning of 1944 there have been 17,888 cases of poliomyelitis reported as compared with 11,379 and 8,356 in the corresponding periods of 1943 and 1941, respectively. In 1942 there were 3,624 cases reported for these same weeks.

*Meningococcus meningitis*.—The number of cases (622) of this disease reported for the current 4-week period was only about 70 percent of the number reported for the corresponding period in 1943, but the incidence was still above the seasonal expectancy in all sections of the country. While the 1939–43 median falls within one of the low

years preceding the current high incidence of this disease, the average number of cases reported for this period in the years 1929-41 was approximately 220 cases, or less than one-third of the current incidence.

*Influenza.*—For the 4 weeks ended November 4 there were 5,629 cases of influenza reported, as compared with 5,583 in 1943 and a 5-year median of 5,009 cases. The incidence was higher than the normal seasonal expectancy in the New England, South Atlantic, and West South Central sections, but relatively low in all other sections. Approximately 4,500 of the total cases occurred in 3 States, viz, Texas (3,021), South Carolina (1,023), and Virginia (460).

#### DISEASES BELOW MEDIAN PREVALENCE

*Diphtheria.*—For the 4 weeks ended November 4, there were 1,940 cases of diphtheria reported, as compared with 1,665, 2,484, and 2,480 for the corresponding period in 1943, 1942, and 1941, respectively. The incidence was about 15 percent above the 1943 figure, but it was less than 80 percent of the 1939-43 median, which is represented by the 1942 figure. Increases over 1943 were reported from all sections except the East North Central and South Atlantic. In 5 sections the incidence was above the 1939-43 median, in 3 sections the number of cases occurring during the current period fell below the 5-year median, and in 1 section, the New England, the incidence was about normal.

*Measles.*—For the current 4-week period the number of cases (2,188) of measles reported was less than 25 percent of the 1943 incidence and about 40 percent of the 1939-43 median. For the country as a whole the number of cases was the lowest reported for this period since 1936, when approximately 2,000 cases were reported. The incidence was below the preceding 5-year median in all sections except the West South Central and Pacific sections.

*Scarlet fever.*—The expected seasonal increase of scarlet fever appeared in all sections of the country during the current 4-week period. Compared with preceding years, however, the number of cases (8,492) was about 85 percent of the 1943 incidence during the corresponding period, and less than 95 percent of the 1939-43 median figure. Increases over the seasonal expectancy were reported from the New England, West South Central, Mountain, and Pacific sections, but all other sections reported a relatively low incidence.

*Smallpox.*—The number of cases (19) of smallpox reported during the 4 weeks ended November 4 was approximately the same as occurred during the corresponding period in 1943, but it was less than 50 percent of the 1939-43 median. States in the Mountain region reported 11 cases, as compared with a 5-year median of 2 cases; the remaining cases occurred in the East North Central section (7 cases) and East South Central section (1 case).



Number of reported cases of 9 communicable diseases in the United States during the 4-week period October 8–November 4, 1944, the number for the corresponding period in 1943, and the median number of cases reported for the corresponding period, 1939–43

Division	Current period	1943	5-year median	Current period	1943	5-year median	Current period	1943	5-year median
	Diphtheria			Influenza <sup>1</sup>			Measles <sup>1</sup>		
United States.....	1,040	1,665	2,480	5,629	5,583	5,009	2,188	9,773	5,283
New England.....	27	25	25	70	17	7	349	982	851
Middle Atlantic.....	97	83	136	31	46	46	255	1,389	926
East North Central.....	165	230	238	97	105	188	224	3,435	702
West North Central.....	154	133	128	23	33	46	86	1,905	352
South Atlantic.....	418	476	946	1,638	1,612	1,499	114	954	412
East South Central.....	324	271	355	118	240	240	28	158	158
West South Central.....	482	234	355	3,294	2,977	2,250	170	186	128
Mountain.....	85	53	57	264	396	396	101	413	516
Pacific.....	178	160	106	94	157	157	861	351	632
	Meningococcus meningitis			Poliomyelitis			Scarlet fever		
United States.....	622	859	135	2,464	1,555	1,320	8,492	9,981	8,970
New England.....	44	91	12	136	123	34	715	830	611
Middle Atlantic.....	168	231	27	1,097	155	155	1,281	1,562	1,382
East North Central.....	151	170	25	429	319	223	1,966	2,675	2,355
West North Central.....	57	42	11	218	165	165	899	1,156	1,039
South Atlantic.....	68	133	26	341	26	69	1,293	1,506	1,390
East South Central.....	33	64	19	71	20	58	555	601	729
West South Central.....	35	37	8	38	120	50	450	320	320
Mountain.....	9	18	3	17	133	65	467	386	257
Pacific.....	57	73	10	117	494	103	866	945	528
	Smallpox			Typhoid and paratyphoid fever			Whooping cough <sup>2</sup>		
United States.....	19	20	45	407	414	847	5,939	9,242	10,795
New England.....	0	0	0	23	27	27	666	778	959
Middle Atlantic.....	0	0	0	65	52	99	1,335	1,909	2,856
East North Central.....	7	7	13	35	51	109	1,202	2,416	2,782
West North Central.....	0	6	14	18	22	59	416	679	679
South Atlantic.....	0	2	1	76	92	190	886	1,432	1,194
East South Central.....	1	3	4	42	39	120	149	396	463
West South Central.....	0	1	9	90	74	119	621	379	387
Mountain.....	11	1	2	27	30	47	255	452	399
Pacific.....	0	0	4	31	27	30	409	801	892

<sup>1</sup> Mississippi and New York excluded; New York City included.

<sup>2</sup> Mississippi excluded.

*Typhoid fever and paratyphoid fever.*—The number of cases of typhoid fever declined considerably during the current 4-week period. Compared with preceding years the incidence (407 cases) was approximately the same as in 1943 and about 50 percent less than the 1939–43 median incidence for the same weeks. The situation was favorable in all sections of the country, the number of cases being below the median in all regions except the Pacific; in that area the number of cases was approximately the same as the median.

*Whooping cough.*—The number of cases of this disease was also relatively low, 5,939 cases being reported for the current 4 weeks, as compared with 9,242 for the same weeks in 1943 and a 5-year median of approximately 11,000 cases. The number of cases was about 50 percent above the seasonal expectancy in the West South Central



section, but in all other regions the incidence was well below the 5-year median.

#### MORTALITY, ALL CAUSES

For the 4 weeks ended November 4 there were approximately 35,400 deaths from all causes reported to the Bureau of the Census by 93 large cities. The average number reported for the corresponding period in 1941-43 was approximately 33,700 deaths. Each week of the 4-week period showed an increase over the preceding 3-year average, the weekly average increase being 4.6 percent.

#### DEATHS DURING WEEK ENDED NOVEMBER 4, 1944

[From the Weekly Mortality Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Nov. 4, 1944	Correspond- ing week, 1943
<b>Data for 91 large cities of the United States:</b>		
Total deaths.....	8,902	8,680
Average for 3 prior years.....	8,450	
Total deaths, 44 weeks of year.....	391,861	399,120
Deaths under 1 year of age.....	669	626
Average for 3 prior years.....	609	
Deaths under 1 year of age, 44 weeks of year.....	27,140	28,850
<b>Data from industrial insurance companies:</b>		
Policies in force.....	66,865,613	66,017,204
Number of death claims.....	12,864	10,477
Death claims per 1,000 policies in force, annual rate.....	10.1	8.3
Death claims per 1,000 policies, 44 weeks of year, annual rate.....	10.0	9.7

## PREVALENCE OF DISEASE

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring*

### UNITED STATES

#### REPORTS FROM STATES FOR WEEK ENDED NOVEMBER 11, 1944

##### Summary

A total of 314 cases of poliomyelitis was reported, representing a decrease of 30 percent for the week, as compared with a 22-percent decrease last week. The total for the corresponding week last year was 243, and the 5-year (1939-43) median is 191. Of the current total, 232 cases occurred in the 9 States reporting 10 or more cases each, as follows (last week's figures in parentheses): *Increases*—Minnesota 16 (12), Virginia 12 (8), Oregon 10 (2); *decreases*—New York 106 (145), New Jersey 14 (17), Pennsylvania 27 (34), Ohio 19 (31), Illinois 12 (23), Michigan 16 (24). The cumulative total to date is 18,202, as compared with 11,622 for the corresponding period last year. The latter figure proved to be 93 percent of the total for that year. During the period June 25 to date the weekly figures have been continuously above those of last year, and the cumulative figures for that period of the two years are, respectively, 17,422 and 10,717.

The total of 153 reported cases of meningococcus meningitis, while lower than for the corresponding week last year, is more than 3 times the 5-year median. The cumulative figure since September 9, the date of the lowest weekly incidence this year, is 1,298 as compared with 1,774 for the same period last year and a 5-year median of 278 for the corresponding periods of the years 1938-42.

The current reports of diphtheria, influenza, smallpox, typhoid fever, and whooping cough are below the respective figures for both last week and the 5-year median.

For the ninth consecutive week the incidence of measles is lower than for the corresponding week of any of the past 5 years. The cumulative total for this period is 4,438, as compared with a median of 10,133 for the corresponding periods of the past 5 years. For the entire year to date the weekly incidence of whooping cough has been constantly below that of any of the past 5 years. The cumulative total is 82,789, as compared with a 5-year median of 155,529.

A total of 8,607 deaths was recorded for the week in 93 large cities of the United States, as compared with 8,968 last week and a 3-year (1941-43) average of 8,568. The cumulative figure is 403,799, as compared with 411,025 for the same period last year.

*Telegraphic morbidity reports from State health officers for the week ended November 11, 1944, and comparison with corresponding week of 1943 and 5-year median*

In these tables a zero indicates a definite report, while leaders imply that, although none was reported, cases may have occurred.

Division and State	Diphtheria			Influenza			Measles			Meningitis, meningococcus		
	Week ended—		Median 1939-43	Week ended—		Median 1939-43	Week ended—		Median 1939-43	Week ended—		Median 1939-43
	Nov. 11, 1944	Nov. 13, 1943		Nov. 11, 1944	Nov. 13, 1943		Nov. 11, 1944	Nov. 13, 1943		Nov. 11, 1944	Nov. 13, 1943	
NEW ENGLAND												
Maine.....	0	0	1	—	—	—	0	57	54	0	0	0
New Hampshire.....	0	0	0	—	—	—	50	12	4	0	1	0
Vermont.....	0	0	0	—	—	—	3	0	3	0	0	0
Massachusetts.....	6	6	3	—	—	—	105	166	166	4	6	2
Rhode Island.....	0	0	0	31	—	—	1	54	6	1	4	0
Connecticut.....	0	0	0	2	1	3	12	3	6	3	5	1
MIDDLE ATLANTIC												
New York.....	9	16	16	12	13	16	25	240	171	21	33	4
New Jersey.....	6	4	5	2	2	4	12	188	26	4	14	2
Pennsylvania.....	9	1	15	1	2	—	25	169	207	13	21	4
EAST NORTH CENTRAL												
Ohio.....	11	7	19	8	4	5	7	495	30	8	12	0
Indiana.....	4	7	15	12	45	6	6	106	7	7	3	1
Illinois.....	3	11	24	1	9	9	12	36	36	13	8	1
Michigan <sup>1</sup> .....	21	5	10	2	87	1	8	352	160	11	17	2
Wisconsin.....	0	6	1	14	18	21	14	404	95	2	1	1
WEST NORTH CENTRAL												
Minnesota.....	9	10	1	—	—	1	5	420	31	3	2	1
Iowa.....	7	3	3	—	—	—	18	3	20	1	0	0
Missouri.....	4	6	6	1	3	2	0	3	5	2	11	0
North Dakota.....	3	4	3	—	—	4	2	210	6	0	0	0
South Dakota.....	2	3	3	—	—	—	1	11	4	0	0	0
Nebraska.....	1	4	4	15	5	1	6	5	5	0	0	0
Kansas.....	6	2	2	—	—	4	5	3	9	0	0	0
SOUTH ATLANTIC												
Delaware.....	0	0	0	—	—	—	2	17	1	1	3	0
Maryland <sup>1</sup> .....	8	7	11	4	—	1	3	23	9	3	5	2
District of Columbia.....	0	0	0	1	2	2	1	11	1	2	2	0
Virginia.....	19	11	28	175	107	114	6	208	23	2	11	2
West Virginia.....	4	6	14	6	—	9	24	16	8	3	2	1
North Carolina.....	39	21	59	3	2	2	7	42	42	0	6	1
South Carolina.....	10	12	23	231	305	239	3	52	9	0	4	2
Georgia.....	18	26	26	22	19	31	3	23	5	0	3	0
Florida.....	6	12	5	2	11	2	1	5	4	5	4	0
EAST SOUTH CENTRAL												
Kentucky.....	12	9	10	8	3	4	1	13	13	4	6	1
Tennessee.....	19	13	14	24	15	22	3	12	12	7	5	2
Alabama.....	35	26	28	16	52	49	2	23	12	5	1	1
Mississippi <sup>1</sup> .....	33	5	15	—	—	—	—	—	—	3	3	1
WEST SOUTH CENTRAL												
Arkansas.....	10	6	15	21	26	26	1	4	5	0	0	0
Louisiana.....	18	7	12	3	11	11	1	1	1	1	1	1
Oklahoma.....	11	5	12	21	38	38	3	12	1	0	4	0
Texas.....	55	62	57	562	630	523	15	27	29	6	5	3
MOUNTAIN												
Montana.....	1	2	2	—	1	1	2	78	8	0	0	0
Idaho.....	1	2	0	—	—	—	0	5	5	1	1	0
Wyoming.....	1	0	1	23	2	2	0	7	7	0	0	0
Colorado.....	4	17	16	19	15	21	5	52	20	0	2	0
New Mexico.....	5	0	1	1	—	—	0	0	0	0	0	0
Arizona.....	0	3	3	54	116	76	1	1	2	1	1	0
Utah <sup>1</sup> .....	0	0	0	—	—	3	11	1	9	0	0	0
Nevada.....	0	0	0	—	3	—	0	4	0	0	0	0
PACIFIC												
Washington.....	5	23	3	—	—	1	22	45	45	1	4	1
Oregon.....	4	2	2	8	6	7	25	34	15	4	1	0
California.....	23	26	23	14	12	22	135	35	41	11	11	4
Total.....	442	398	551	1,309	1,555	1,555	594	3,688	2,003	153	223	41
45 weeks.....	11,194	11,513	13,073	350,488	94,209	159,002	597,152	557,876	478,155	14,781	15,796	1,768

<sup>1</sup> New York City only.

<sup>2</sup> Week ended earlier than Saturday.

Telegraphic morbidity reports from State health officers for the week ended November 11, 1944, and comparison with corresponding week of 1943 and 5-year median—Continued

Division and State	Poliomyelitis			Scarlet fever			Smallpox			Typhoid and paratyphoid fever <sup>1</sup>		
	Week ended—		Median 1939-43	Week ended—		Median 1939-43	Week ended—		Median 1939-43	Week ended—		Median 1939-43
	Nov. 11, 1944	Nov. 13, 1943		Nov. 11, 1944	Nov. 13, 1943		Nov. 11, 1944	Nov. 13, 1943		Nov. 11, 1944	Nov. 13, 1943	
NEW ENGLAND												
Maine.....	0	0	0	21	15	8	0	0	0	0	0	0
New Hampshire.....	0	0	0	2	1	9	0	0	0	0	0	0
Vermont.....	0	0	0	6	14	5	0	0	0	0	1	0
Massachusetts.....	9	10	2	145	142	142	0	0	0	1	1	1
Rhode Island.....	0	2	0	12	8	8	0	0	0	0	1	1
Connecticut.....	5	1	1	38	23	22	0	0	0	0	1	0
MIDDLE ATLANTIC												
New York.....	106	17	17	163	239	173	0	0	0	3	7	7
New Jersey.....	14	1	5	53	62	65	0	0	0	1	1	1
Pennsylvania.....	27	1	6	186	153	152	0	0	0	6	5	8
EAST NORTH CENTRAL												
Ohio.....	19	2	5	407	223	205	0	0	0	3	2	5
Indiana.....	0	1	2	47	53	57	0	1	1	2	0	1
Illinois.....	12	26	15	159	107	170	0	1	1	0	3	3
Michigan <sup>1</sup> .....	16	4	6	128	105	105	0	1	1	1	2	2
Wisconsin.....	2	7	7	50	116	116	0	2	2	0	0	0
WEST NORTH CENTRAL												
Minnesota.....	16	1	8	37	64	64	0	0	0	1	0	0
Iowa.....	2	1	2	43	54	50	1	0	0	0	4	1
Missouri.....	9	3	1	39	48	48	0	0	0	2	2	2
North Dakota.....	0	5	0	7	8	8	0	0	0	0	0	0
South Dakota.....	0	0	3	9	12	18	0	0	0	1	0	1
Nebraska.....	0	3	3	40	32	15	1	0	0	0	0	0
Kansas.....	2	11	3	79	94	71	0	2	0	1	0	2
SOUTH ATLANTIC												
Delaware.....	3	0	0	7	2	4	0	0	0	0	0	0
Maryland <sup>2</sup> .....	7	0	0	96	40	38	0	0	0	1	0	4
District of Columbia.....	0	0	0	14	15	14	0	0	0	0	1	0
Virginia.....	12	2	2	76	54	56	0	0	0	1	1	5
West Virginia.....	3	1	1	98	84	62	1	0	0	2	1	1
North Carolina.....	4	0	1	92	130	116	0	0	0	2	3	2
South Carolina.....	0	0	0	11	10	20	0	0	0	1	2	3
Georgia.....	0	1	1	33	31	32	0	0	0	4	1	3
Florida.....	1	0	1	5	12	8	0	0	0	2	0	2
EAST SOUTH CENTRAL												
Kentucky.....	9	6	6	49	44	57	0	0	0	2	3	6
Tennessee.....	2	0	0	89	55	92	0	0	0	2	3	6
Alabama.....	2	0	1	45	22	24	0	0	0	2	2	2
Mississippi <sup>1</sup> .....	2	2	2	20	4	12	0	0	0	5	1	1
WEST SOUTH CENTRAL												
Arkansas.....	0	3	1	13	8	9	0	0	0	2	8	8
Louisiana.....	1	0	0	14	14	11	0	0	0	2	4	5
Oklahoma.....	2	14	2	30	58	17	0	0	0	2	1	1
Texas.....	3	9	4	67	55	47	0	0	0	10	9	13
MOUNTAIN												
Montana.....	1	2	0	17	34	26	0	0	0	0	2	0
Idaho.....	1	0	2	35	11	11	0	0	0	0	1	1
Wyoming.....	0	0	0	10	1	6	0	0	0	0	0	0
Colorado.....	0	6	2	47	27	32	1	0	0	0	3	2
New Mexico.....	1	2	0	18	15	7	0	0	0	2	0	0
Arizona.....	0	0	0	11	10	1	0	0	0	5	1	1
Utah <sup>1</sup> .....	1	7	3	12	28	17	0	0	0	0	0	0
Nevada.....	0	3	0	3	3	1	0	0	0	0	0	0
PACIFIC												
Washington.....	6	8	1	41	58	52	0	1	1	1	0	0
Oregon.....	10	19	0	30	59	15	0	0	0	1	0	0
California.....	4	62	17	191	152	109	0	0	0	3	3	3
Total.....	314	243	191	2,845	2,609	2,518	4	8	9	74	80	116
45 weeks.....	18,202	11,622	8,361	165,835	118,943	118,943	344	663	1,257	4,955	4,990	7,694

<sup>2</sup> Period ended earlier than Saturday.

<sup>3</sup> Including paratyphoid fever reported separately, as follows: New York 1, New Jersey 1, Georgia 3, Florida 1, Texas 1, New Mexico 1, California 1.

*Telegraphic morbidity reports from State health officers for the week ended November 11, 1944, and comparison with corresponding week of 1943 and 5-year median—Continued*

Division and State	Whooping cough			Week ended November 11, 1944									
	Week ended—		Median 1939-43	An- thrax	Dysentery			En- ceph- alitis- infec- tious	Lep- rosy	Rocky Mt. spot- ted fever	Tula- remia	Ty- phus fever	
	Nov. 11, 1944	Nov. 13, 1943			Ame- bic	Bacil- lary	Un- spec- ified						
NEW ENGLAND													
Maine.....	25	6	43	0	0	0	0	0	0	0	0	0	
New Hampshire.....	0	3	3	0	0	0	0	0	0	0	0	0	
Vermont.....	31	34	34	0	0	0	0	0	0	0	0	0	
Massachusetts.....	95	41	172	0	0	5	0	0	0	0	0	0	
Rhode Island.....	2	22	21	0	0	0	0	0	0	0	0	0	
Connecticut.....	54	37	70	0	0	1	0	1	0	0	0	0	
MIDDLE ATLANTIC													
New York.....	166	257	450	0	2	75	0	2	0	0	0	1	
New Jersey.....	69	96	137	0	1	0	0	0	0	0	0	0	
Pennsylvania.....	139	145	279	0	0	0	0	0	0	0	0	0	
EAST NORTH CENTRAL													
Ohio.....	189	153	153	0	0	0	0	0	0	1	1	0	
Indiana.....	21	11	13	0	0	0	0	0	0	0	0	0	
Illinois.....	76	122	155	0	7	0	0	0	0	0	2	0	
Michigan <sup>2</sup> .....	47	180	232	0	1	4	0	0	0	0	0	0	
Wisconsin.....	62	191	191	0	0	0	0	0	0	0	0	0	
WEST NORTH CENTRAL													
Minnesota.....	32	54	54	0	0	6	0	0	0	0	0	0	
Iowa.....	0	24	24	0	0	0	0	0	0	0	0	0	
Missouri.....	14	12	11	0	0	0	1	0	0	0	0	0	
North Dakota.....	8	20	9	0	0	0	0	0	0	0	0	0	
South Dakota.....	3	27	6	0	0	0	1	0	0	0	0	0	
Nebraska.....	6	8	8	0	0	0	0	0	0	0	0	0	
Kansas.....	14	15	17	0	0	0	0	1	0	0	0	0	
SOUTH ATLANTIC													
Delaware.....	0	1	1	0	0	0	0	0	0	0	0	0	
Maryland <sup>2</sup> .....	55	51	52	0	0	0	0	0	0	0	0	0	
District of Columbia.....	1	15	12	0	0	0	0	0	0	0	0	0	
Virginia.....	26	80	59	0	0	0	78	0	0	0	0	1	
West Virginia.....	7	16	16	0	0	0	0	0	0	0	1	0	
North Carolina.....	37	190	113	0	0	0	0	0	0	0	0	3	
South Carolina.....	25	47	20	0	2	21	0	0	0	0	0	2	
Georgia.....	18	5	9	0	0	0	0	0	0	0	0	31	
Florida.....	17	0	10	0	1	0	0	0	0	0	0	10	
EAST SOUTH CENTRAL													
Kentucky.....	47	88	79	0	0	1	0	0	0	0	0	0	
Tennessee.....	40	11	27	0	1	0	4	0	0	2	4	4	
Alabama.....	5	17	9	0	0	0	0	0	0	0	0	11	
Mississippi <sup>2</sup> .....				0	0	0	0	0	0	0	1	2	
WEST SOUTH CENTRAL													
Arkansas.....	26	13	16	0	0	26	0	0	0	0	0	0	
Louisiana.....	3	6	6	0	0	0	0	0	0	0	0	3	
Oklahoma.....	3	0	4	0	0	0	0	0	0	0	0	0	
Texas.....	134	81	85	0	8	340	12	0	0	0	1	33	
MOUNTAIN													
Montana.....	2	0	4	0	0	0	0	0	0	0	1	0	
Idaho.....	3	5	4	0	0	0	0	0	0	0	0	0	
Wyoming.....	12	2	3	0	0	0	0	0	0	0	0	0	
Colorado.....	14	36	17	0	1	0	0	2	0	0	0	0	
New Mexico.....	1	4	7	0	0	15	2	0	0	0	0	0	
Arizona.....	14	18	9	0	2	0	24	0	0	0	0	0	
Utah <sup>2</sup> .....	11	26	27	0	0	0	0	0	0	0	0	0	
Nevada.....	0	0	0	0	0	0	0	0	0	0	0	0	
PACIFIC													
Washington.....	7	83	37	0	0	0	0	0	0	0	0	0	
Oregon.....	7	18	18	0	0	0	0	0	0	0	0	0	
California.....	93	96	142	0	2	9	0	1	0	0	0	1	
Total.....	1,661	2,367	2,908	0	28	503	122	7	0	3	11	102	
Same week 1943.....	2,367			2	48	391	154	13	1	1	2	104	
Same week 1942.....	2,908			0	17	188	78	12	0	1	10	87	
45 weeks 1944.....	82,789			38	1,612	21,043	7,869	577	27	450	489	4,528	
45 weeks 1943.....	161,574			60	1,856	14,628	6,910	610	25	428	708	3,820	
45 weeks 1942.....	155,529		*155,529	71	1,065	11,197	6,101	512	42	*450	758	*2,539	

<sup>2</sup> Period ended earlier than Saturday.

\* 5-year median, 1939-43.

## WEEKLY REPORTS FROM CITIES

City reports for week ended November 4, 1944

This table lists the reports from 85 cities of more than 10,000 population distributed throughout the United States, and represents a cross section of the current urban incidence of the diseases included in the table.

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Pollomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
NEW ENGLAND												
Maine:												
Portland.....	0	0		0	3	0	2	0	7	0	0	0
New Hampshire:												
Concord.....	0	0		0	0	0	1	1	0	0	0	0
Massachusetts:												
Boston.....	0	0		0	42	3	11	7	39	0	0	23
Fall River.....	0	0		0	0	1	0	0	3	0	0	0
Springfield.....	0	0		0	1	2	0	0	1	0	0	1
Worcester.....	0	0		0	0	0	9	0	6	0	0	4
Rhode Island:												
Providence.....	1	0		0	0	0	2	0	4	0	0	30
Connecticut:												
Bridgeport.....	0	0		0	0	0	0	1	1	0	0	0
Hartford.....	0	0		0	5	0	4	0	2	0	0	5
New Haven.....	1	0		0	0	1	0	0	1	0	0	20
MIDDLE ATLANTIC												
New York:												
Buffalo.....	0	0		0	0	2	8	11	3	0	0	0
New York.....	8	0	5	2	6	12	81	42	88	0	7	83
Rochester.....	0	0		0	10	0	6	12	2	0	0	18
Syracuse.....	0	0		0	0	0	0	2	6	0	0	5
New Jersey:												
Camden.....	0	0		0	0	0	3	0	2	0	0	1
Newark.....	0	0	1	0	5	0	7	0	8	0	0	7
Trenton.....	0	0	1	0	0	0	2	1	0	0	0	0
Pennsylvania:												
Philadelphia.....	0	0	5	2	4	2	18	3	46	0	1	23
Pittsburgh.....	0	0		0	0	2	14	3	11	0	1	16
Reading.....	0	0		0	1	0	2	0	0	0	0	0
EAST NORTH CENTRAL												
Ohio:												
Cincinnati.....	4	0		0	0	2	2	4	11	0	0	7
Cleveland.....	0	0	2	1	0	5	7	5	28	0	0	12
Columbus.....	0	0		0	0	0	0	0	4	0	0	7
Indiana:												
Fort Wayne.....	0	0		0	0	0	0	0	3	0	0	0
Indianapolis.....	2	0		0	0	3	6	0	11	0	0	1
South Bend.....	0	0		0	1	1	0	0	3	0	0	0
Terre Haute.....	0	0		0	0	0	4	0	0	0	0	0
Illinois:												
Chicago.....	0	0		2	9	3	22	2	43	0	2	29
Springfield.....	0	0		0	2	1	0	0	1	0	0	0
Michigan:												
Detroit.....	17	1	1	0	4	5	13	6	40	0	1	12
Flint.....	0	0		0	0	0	0	0	0	0	0	0
Grand Rapids.....	0	0		0	0	0	0	1	14	0	0	0
Wisconsin:												
Kenosha.....	0	0		0	0	0	0	0	1	0	0	6
Milwaukee.....	0	0		0	2	4	8	0	9	0	0	14
Racine.....	0	0		0	0	0	0	0	0	0	0	5
Superior.....	0	0		0	3	0	0	0	0	0	0	1
WEST NORTH CENTRAL												
Minnesota:												
Duluth.....	0	0		0	1	0	1	2	6	0	0	6
Minneapolis.....	24	0		0	1	1	3	5	8	0	0	3
St. Paul.....	0	0		0	1	1	5	2	9	0	0	13
Missouri:												
Kansas City.....	1	0		0	0	1	6	0	6	0	1	0
St. Joseph.....	0	0		0	0	0	0	0	1	0	0	0
St. Louis.....	0	0		0	1	4	13	10	5	0	0	6



## City reports for week ended November 4, 1944—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
WEST NORTH CENTRAL—Continued												
North Dakota:												
Fargo.....	0	0	—	0	0	0	2	0	0	0	0	0
Nebraska:												
Omaha.....	0	0	—	0	3	1	4	0	6	0	0	0
Kansas:												
Topeka.....	0	0	—	0	0	0	0	0	2	0	0	1
Wichita.....	0	0	—	0	1	0	3	0	5	0	0	3
SOUTH ATLANTIC												
Delaware:												
Wilmington.....	0	0	—	0	0	0	0	0	0	0	0	0
Maryland:												
Baltimore.....	2	0	1	1	0	4	10	6	22	0	0	53
Cumberland.....	0	0	—	0	0	0	0	0	5	0	0	0
Frederick.....	0	0	—	0	0	0	0	0	0	0	0	0
District of Columbia:												
Washington.....	0	0	2	1	2	2	7	0	20	0	1	6
Virginia:												
Richmond.....	2	0	1	1	0	0	2	0	9	0	0	0
Roanoke.....	0	0	—	0	0	0	1	1	2	0	0	0
West Virginia:												
Wheeling.....	0	0	—	0	0	0	1	0	4	0	0	3
North Carolina:												
Raleigh.....	0	0	—	0	0	0	0	0	0	0	0	1
Wilmington.....	2	0	—	0	2	0	0	0	6	0	0	0
Winston-Salem.....	0	0	—	0	0	0	1	0	5	0	0	0
South Carolina:												
Charleston.....	1	0	8	0	0	0	0	1	2	0	0	1
Georgia:												
Atlanta.....	0	0	11	0	0	0	3	0	5	0	0	1
Brunswick.....	0	0	—	0	0	0	1	0	0	0	0	0
Savannah.....	0	0	2	0	0	0	0	0	0	0	0	0
Florida:												
Tampa.....	5	0	—	0	0	0	3	2	4	0	0	1
EAST SOUTH CENTRAL												
Tennessee:												
Memphis.....	6	0	—	1	3	0	5	1	10	0	0	2
Nashville.....	0	0	—	0	0	0	2	0	6	0	0	0
Alabama:												
Birmingham.....	0	0	1	1	0	0	2	0	0	0	0	0
Mobile.....	1	0	0	0	0	0	2	0	2	0	0	0
WEST SOUTH CENTRAL												
Arkansas:												
Little Rock.....	0	0	—	0	0	0	1	0	2	0	0	2
Louisiana:												
New Orleans.....	4	0	—	0	0	1	7	2	4	0	4	0
Shreveport.....	2	0	—	1	0	0	2	0	1	0	0	0
Texas:												
Dallas.....	6	0	—	0	1	0	7	0	5	0	0	3
Galveston.....	0	0	—	0	0	0	1	0	6	0	0	0
Houston.....	5	0	—	0	1	0	5	1	4	0	2	0
San Antonio.....	3	0	—	0	0	0	3	0	1	0	0	0
MOUNTAIN												
Montana:												
Billings.....	0	0	—	0	0	0	1	0	1	0	0	3
Great Falls.....	0	0	—	0	0	0	1	0	2	0	0	0
Helena.....	0	0	—	0	0	0	0	0	0	0	0	0
Missoula.....	0	0	—	0	2	0	1	0	0	0	0	0
Idaho:												
Boise.....	0	0	—	0	0	0	0	0	0	0	0	0
Colorado:												
Denver.....	2	0	2	0	3	0	6	0	9	0	0	0
Pueblo.....	0	0	—	0	0	0	0	0	1	0	0	0

## City reports for week ended November 4, 1944—Continued

	Diphtheria cases	Encephalitis, infectious, cases	Influenza		Measles cases	Meningitis, meningococcus, cases	Pneumonia deaths	Poliomyelitis cases	Scarlet fever cases	Smallpox cases	Typhoid and paratyphoid fever cases	Whooping cough cases
			Cases	Deaths								
PACIFIC												
Washington:												
Seattle.....	0	0	0	0	4	0	3	0	8	0	0	0
Spokane.....	1	0	0	0	6	0	0	0	2	0	1	0
Tacoma.....	1	0	0	0	2	0	0	0	4	0	0	0
California:												
Sacramento.....	0	0	0	0	1	0	1	0	2	0	0	0
San Francisco.....	0	0	1	0	22	1	4	1	14	0	0	11
Total.....	101	1	44	13	155	65	352	135	614	0	21	440
Corresponding week, 1943.....	70		56	25	645		324		655	0	13	506
Average, 1939-43.....	89		62	21	466		325		617	1	22	919

Dysentery, amebic.—Cases: Boston, 4; Philadelphia, 1; Chicago, 7; Baltimore, 3.

Dysentery, bacillary.—Cases: Providence, 5; Buffalo, 38; New York, 42; Rochester, 1; Syracuse, 3; Cleveland, 1; Detroit, 2; Baltimore, 2; Charleston, S. C., 4; Nashville, 1; Dallas, 1; San Francisco, 2.

Dysentery, unspecified.—Cases: Richmond, 2.

Rocky Mountain spotted fever.—Cases: New York 1.

Typhus fever.—Cases: Charleston, S. C., 1; Atlanta, 1; Savannah, 4; Tampa, 4; Mobile, 1; New Orleans, 2; Shreveport, 1; Dallas, 1; Galveston, 2; Houston, 5; San Antonio, 2.

<sup>1</sup> 3-year average, 1941-43.

<sup>2</sup> 5-year median, 1939-43.

Rates (annual basis) per 100,000 population, by geographic groups, for the 85 cities in the preceding table (estimated population, 1943, 32,402,800)

	Diphtheria case rates	Enecephalitis, infectious, case rates	Influenza		Measles case rates	Meningitis, meningococcus, case rates	Pneumonia death rates	Pollomyelitis case rates	Scarlet fever case rates	Smallpox case rates	Typhoid and paratyphoid fever case rates	Whooping cough case rates
			Case rates	Death rates								
New England.....	5.3	0.0	0.0	0.0	134	18.4	76.1	23.6	168	0.0	0.0	218
Middle Atlantic.....	3.7	0.0	5.6	1.9	12	8.3	65.3	34.3	77	0.0	4.2	71
East North Central.....	14.0	0.6	1.8	1.8	13	14.6	37.7	10.9	102	0.0	1.8	57
West North Central.....	49.7	0.0	0.0	0.0	16	15.9	73.6	37.8	95	0.0	2.0	64
South Atlantic.....	20.4	0.0	42.4	5.1	7	10.2	49.2	17.0	142	0.0	1.7	112
East South Central.....	41.3	0.0	5.9	11.8	18	0.0	64.9	5.9	106	0.0	0.0	12
West South Central.....	57.4	0.0	0.0	2.9	6	2.9	74.6	8.6	66	0.0	17.2	14
Mountain.....	21.1	0.0	21.1	0.0	53	0.0	94.9	0.0	137	0.0	0.0	32
Pacific.....	6.5	0.0	3.3	0.0	114	3.3	26.1	3.3	98	0.0	3.3	36
Total.....	16.3	0.2	7.1	2.1	25	10.5	56.8	21.8	99	0.0	3.4	72

## PLAGUE INFECTION IN TACOMA, WASH.

Plague infection has been reported proved in fleas and tissue from rats, *R. norvegicus*, taken at the waterfront in Tacoma, Wash., on October 23 and 28, as follows: Spleen from 1 rat and a pool of spleens from 5 rats; a pool of 400 fleas from 22 rats, and a pool of 61 fleas from 46 rats.

## TERRITORIES AND POSSESSIONS

## Panama Canal Zone

*Notifiable diseases—September 1944.*—During the month of September 1944, certain notifiable diseases were reported in the Panama Canal Zone and terminal cities as follows:

Disease	Panama		Colon		Canal Zone		Outside the Zone and terminal cities		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Chickenpox.....	17		2		6		3		28	
Diphtheria.....	8		1				4		13	
Dysentery (amebic).....	3				1		7	1	11	1
Dysentery (bacillary).....	3		1		7		2	1	13	1
Leprosy.....							1	1	1	1
Malaria <sup>1</sup> .....	7	1	3		83	1	54	4	147	6
Measles.....			1		4				5	
Mumps.....	2		1		5		1		9	
Paratyphoid fever.....	2				5		1		8	
Pneumonia.....		6		3	33	2		3	<sup>2</sup> 33	14
Poliomyelitis.....							1	1	1	1
Relapsing fever.....							2		2	
Tuberculosis.....		20		2	6			7	<sup>2</sup> 6	29
Typhoid fever.....	1						1	1	2	1
Whooping cough.....					2				<sup>2</sup> 2	

<sup>1</sup> 24 recurrent cases.

<sup>2</sup> In the Canal Zone only.

## FOREIGN REPORTS

### CANADA

*Provinces—Communicable diseases—Week ended October 21, 1944.*—During the week ended October 21, 1944, cases of certain communicable diseases were reported by the Dominion Bureau of Statistics of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Que- bec	On- tario	Mani- toba	Sas- katch- ewan	Al- berta	British Colum- bia	Total
Chickenpox.....		20		108	83	35	10	15	21	292
Diphtheria.....	1	4	1	47	8	1	2	4	1	69
Dysentery:										
Bacillary.....				5			1		3	9
Unspecified.....					1					1
Encephalitis, infectious.....				1						1
German measles.....				1	5				7	13
Influenza.....					4	2			8	14
Measles.....		2		288	30	23	11	4	24	382
Meningitis, meningococcus.....				2	1					3
Mumps.....				140	30		1	14	25	210
Poliomyelitis.....			1		18	4	1		2	30
Scarlet fever.....	1	5	9	67	118	24	5	27	35	291
Tuberculosis (all forms).....		2	2	81	46	9	66		15	221
Typhoid and paratyphoid fever.....				14	1		1		1	17
Undulant fever.....					1	1				2
Venereal diseases:										
Gonorrhea.....		45	7	59	93	29	41	40	79	393
Syphilis.....		13	11	147	84	16	3	12	29	315
Other.....				1						1
Whooping cough.....		27		96	36	16	11	38	12	236

<sup>1</sup> Includes 11 cases, delayed reports.

### COLOMBIA

*Valle Department—Buga—Typhoid fever.*—Under date of October 23, 1944, a report from the American Vice Consul states that an epidemic of typhoid fever has occurred in the town of Buga, with a population of about 29,000, in the Department of Valle, Colombia. The number of cases reported early in October was about 300 and at the time of the report was over 500. The mortality rate is about 10 percent. The cause of the spread of the disease has not been definitely established but is thought to be a polluted water supply.

(1570)

## CUBA

*Provinces—Notifiable diseases—4 weeks ended October 7, 1944.*—During the 4 weeks ended October 7, 1944, cases of certain notifiable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana <sup>1</sup>	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer	1		3	5		12	21
Chickenpox				1		1	2
Diphtheria	1	39	5	3		2	50
Dysentery, unspecified		8					8
Hookworm disease		31					31
Leprosy		1					1
Malaria	9	17	6	9	7	160	208
Measles		3		1			4
Scarlet fever		1					1
Tetanus, infantile				1			1
Tuberculosis (all forms)	19	32	12	13	4	44	124
Typhoid fever	23	64	17	88	11	42	245
Undulant fever					2		2
Whooping cough			1				1
Yaws						3	3

<sup>1</sup> Includes the city of Habana.

#### REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

NOTE.—Except in cases of unusual incidence, only those places are included which had not previously reported any of the above-mentioned diseases, except yellow fever, during the current year. All reports of yellow fever are published currently.

A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

(Few reports are available from the invaded countries of Europe and other nations in war zones.)

#### Plague

*Algeria—Algiers.*—Information dated November 3, 1944, states that from the beginning of the outbreak in September 1944 up to October 31, 1944, a total of 70 cases of plague (including 25 suspected cases) with 23 deaths has been reported in Algiers, Algeria.

*French West Africa—Dakar.*—For the week ended October 21, 1944, 13 fatal cases of plague were reported in Dakar, French West Africa.

*Union of South Africa.*—For the period October 1–14, 1944, 2 cases of plague were reported in the Union of South Africa, no specific location being given.

#### Smallpox

*Bolivia.*—For the month of September 1944, 154 cases of smallpox with 54 deaths were reported in Bolivia, including 34 cases and 7 deaths reported in the Department of La Paz, 42 cases and 19 deaths reported in the city of La Paz, 21 cases and 11 deaths reported in the Department of Potosi, and 27 cases and 8 deaths reported in the city of Potosi.

*Brazil.*—For the period January 1 to October 7, 1944, 7,812 cases of smallpox (including 7,521 cases of alastrim) with 12 were deaths

reported in Brazil. These figures include approximately 800 cases in Mauriti, 700 cases in Saboeiros, and 3,000 cases in Senador Pompeu, Ceara State.

*Colombia*.—For the period January 1 to May 31, 1944, 1,157 cases of smallpox with 11 deaths were reported in Colombia. For the month of June 1944, 256 cases of smallpox with 15 deaths were reported. Departments reporting the highest incidence are: Boyaca, 67 cases, 3 deaths; Valle, 66 cases, 8 deaths; Bolivar, 63 cases; Caldas, 29 cases, 4 deaths; Antioquia, 11 cases; Tolima, 10 cases.

*Togo (British Mandated)*.—For the week ended November 11, 1944, 78 cases of smallpox with 15 deaths were reported in British Mandated Togo.

*Union of South Africa—Natal*.—For the period May 1 to October 1, 1944, 337 cases of smallpox with 103 deaths were reported in Durban and for the period May 30 to October 2, 1944, 80 cases of smallpox with 26 deaths were reported in Pietermaritzburg, Natal, Union of South Africa.

#### Typhus Fever

*Bolivia*.—For the month of September 1944, 25 cases of typhus fever with 5 deaths were reported in Bolivia, including 9 cases and 2 deaths in La Paz city and 12 cases with 3 deaths in the Department of Potosi.

■ *Mexico*.—For the month of September 1944, 147 cases of typhus fever were reported in Mexico. States reporting the highest incidence are: Mexico, D. F., 26 cases, Nuevo Leon, 18 cases, Zacatecas, 11 cases.

#### Yellow Fever

*Nigeria—Bukuru*.—On August 15, 1944, 1 fatal case of yellow fever was reported in Bukuru, Nigeria.

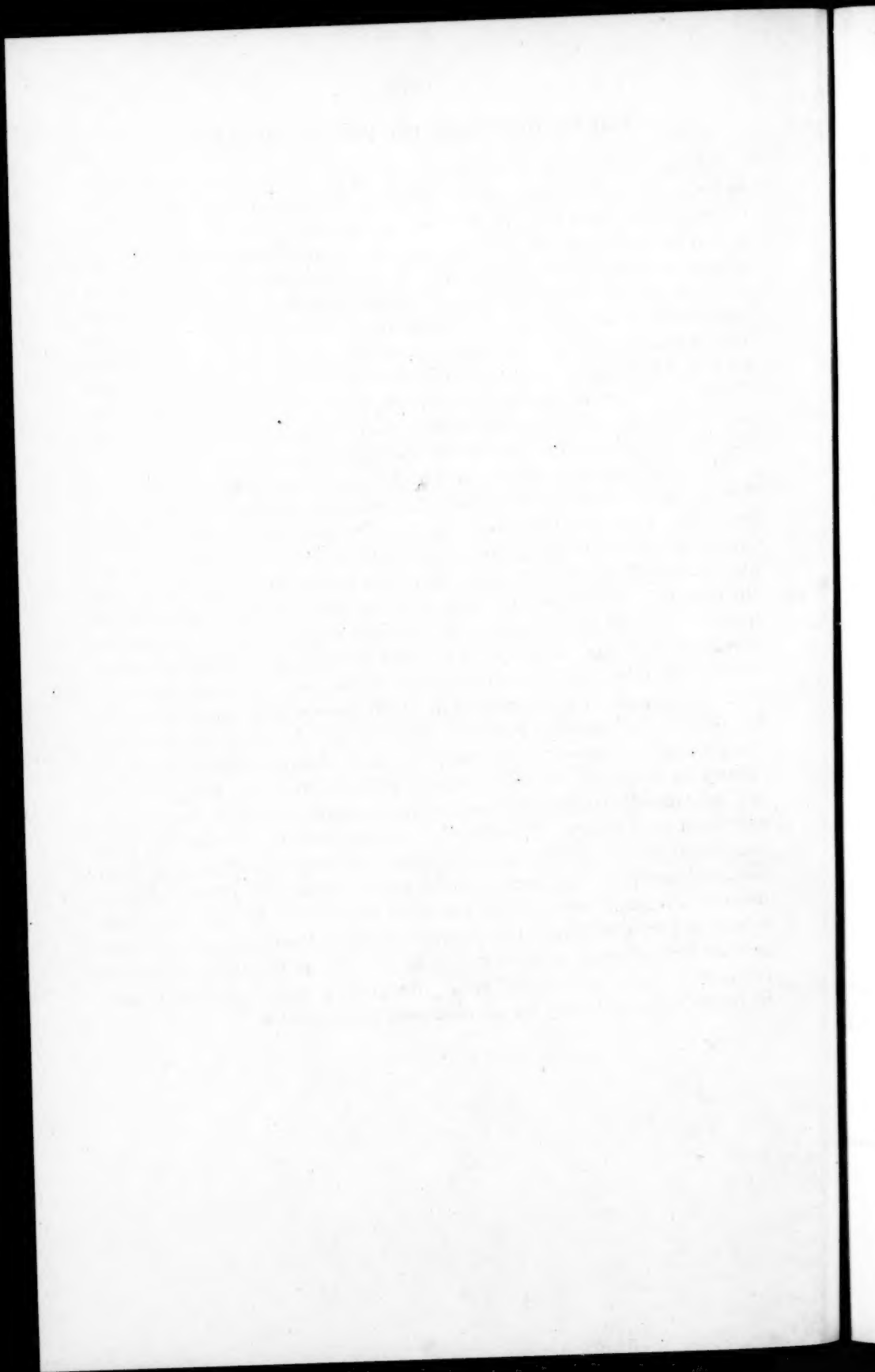
*Venezuela—Tachira State—San Camilo region*.—In addition to the number of cases previously reported, for the period July 16 to September 10, 1944, 21 cases of suspected yellow fever with 9 deaths were reported in the region of San Camilo, Tachira State, Venezuela. The disease has attacked lumbermen and sawmill workers in particular. Vaccination has been carried out.



## COURT DECISION ON PUBLIC HEALTH

*Silicosis held not to be an accidental injury within meaning of workmen's compensation act.*—(South Dakota Supreme Court; *Johnson v. Concrete Materials Co.*, 15 N.W.2d 4; decided June 16, 1944.) An action for damages was brought against an employer based upon his alleged negligence in failing to provide the plaintiff with a safe place in which to work. It was averred by the plaintiff that, as a result of such negligence, he contracted the occupational disease known as silicosis. The defendant sought the dismissal of the complaint on the theory that it described an injury by accident for which the South Dakota Workmen's Compensation Law supplied the exclusive remedy. The trial court overruled the defendant's motion to dismiss the complaint and the defendant appealed to the State supreme court.

The question presented was whether the complaint described an "injury by accident" within the definition of the workmen's compensation act. This statute defined "injury" or "personal injury" as "only injury by accident arising out of and in the course of the employment, and shall not include a disease in any form except as it shall result from the injury." The appellate court said that the complaint described an injury resulting from repeated inhalations of silica over an extended period of time and held that it did not describe an accidental injury which was only compensable under the workmen's compensation statute. A prior case was referred to in which there was involved an injury resulting from ingesting bacillus botulinus and the court quoted from the opinion as follows: "We are of the view that a disease may be an 'injury by accident' within the meaning of our statute. The exclusion is of any disease which is not an accidental injury or which does not result from such injury. It is generally recognized that accident as contemplated by the workmen's compensation law is distinguished from so-called occupational diseases which are the natural and reasonably to be expected result of workmen following certain occupations for a considerable period of time. On the other hand, if the element of suddenness or precipitancy is present and the disease is not the ordinary or reasonably to be anticipated result of pursuing an occupation, it may be regarded as an injury by accident and compensable."



FEDERAL SECURITY AGENCY  
UNITED STATES PUBLIC HEALTH SERVICE

THOMAS PARRAN, *Surgeon General*

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The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the United States Public Health Service through the Division of Public Health Methods, pursuant to the following authority of law: United States Code, title 42, sections 7, 30, 93; title 44, section 220.

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UNITED STATES GOVERNMENT PRINTING OFFICE, WASHINGTON : 1944

For sale by the Superintendent of Documents, Washington 25, D. C.  
Price 5 cents. Subscription price \$2.50 per year